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DETERMINATION OF THEBAINE IN PAPAVER BRACTEATUM 2/

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1/ General note: The views expressed by collaborating scientists in their contributions to the programme are not necessarily shared by the Secretariat.

2/ In the report of the Second Working Group on Papaver bracteatum (document ST/SOA/SER.J/2), it was recommended that methods for the determination of thebaine in Papaver bracteatum should be compared and evaluated, to achieve this, it was decided that participants in the Working Group would forward their methods for publication in this series so that these could be tried out in the various laboratories.

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DETERMINATION OF THEBAINE IN PAPAVER BRACTEATUM

Plant material

The yellow-green capsules collected just prior to maturation were found to contain the maximum of thebaine. Capsules were dried in the open air in the shade. Seeds were separated and the residue was dried at 60° to constant weight and finely ground.

U.V. Spectrophotometric determination of thebaine

A mixture of 1.0 g of powdered capsules and 20 ml of benzene containing 2 ml of concentrated ammonia was stirred for one hour at room temperature. The mixture was filtered with suction and the residue was stirred with 20 ml of benzene for one hour and filtered. The residue was washed with 10 ml of benzene. The combined extracts and benzene washings were evaporated under reduced pressure. The residue was dissolved in 0.1 N HCl and diluted with the same solvent to 500 ml (a small amount of charcoal may be used in the case of coloured solutions). The extinction at 285 mμ (max.) was measured using the E 1%, 1 cm value of 250.

Gravimetric method

The residue from the evaporation of the benzene extracts of 10.0 g of powdered capsules (using a total of 100 ml of benzene and 5 ml of concentrated ammonia) was dissolved in 50 ml of 0.1 N HCl and extracted with three 15 ml portions of ether to remove the colouring matter. To the aqueous layer, concentrated ammonia was added until the reaction was alkaline and three 10 ml portions of chloroform were used for the extraction. After evaporation of the solvent, the crystalline residue was recrystallized from 96% alcohol. Using either chloroform or methanol instead of benzene gave identical results. Also, a 50% aqueous solution of sodium carbonate could be used instead of ammonia.